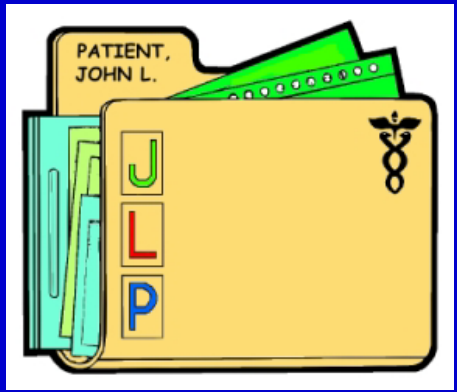


Components of a Hospital Medical Chart

May 27, 2004

Christopher Novak, M.D., M.P.H.

Susan Fischer Davis, M.D.

Introduction

- During a disease outbreak or a public health study may be asked to collect information from a medical chart
- Specific information
- Extraction tool to collect variety of information
- Focus on hospital chart

Goals

- Describe purpose and limitations of medical chart
- Review Virginia law that gives public health workers authority to review charts
- Explain sections and components of medical chart
- Focus on examples of common lab values
- Interpret examples of lab results for a meningitis case

Purpose of medical chart

"The medical chart is the key place to record and evaluate patient care. The content of the medical record is an essential part of the accreditation and reimbursement process. It is considered a billable and legal document."

Possible limitations of medical chart

- Incomplete information
- Delay in posting lab and/or test results
- Difficulty reading handwritten notes
- Difficulty interpreting abbreviations
- Unwieldy, multiple volumes for one patient
- Difficulty locating chart

Virginia code: 32.1-40 Authority of Commissioner to examine medical records

"Every practitioner of the healing arts and every person in charge of any medical care facility shall permit the Commissioner or his designee to examine and review any medical records which he has in his possession or to which he has access upon request of the Commissioner or his designee in the course of investigation, research or studies of diseases or deaths of public health importance. No such practitioner or person shall be liable in any action at law for permitting such examination and review."

Sections of medical chart

1. History and physical (H & P)
2. Progress notes (SOAP) from physicians
3. Physicians orders
4. Nursing notes
5. Consultations
6. Lab results
7. Radiological studies
8. Administrative data
9. Discharge summary

1. Administrative data

- Identifying information
- Insurance information
- Contact information

2. History and physical

- History of present illness (HPI)
- Past medical history (PMH)
- Physical examination (PE)
- Assessment, including differential diagnosis (diff dx)
- Plan for evaluation (work up)

3. Physician progress notes SOAP

- S Subjective findings
- O Objective findings
- A Assessment
- P Plan

4. Physician orders

- Section with many abbreviations
- If critical to know order and uncertain, ask for help interpreting, use reference
- Example: Allegra 180 mg PO qd prn
  Rifampin 600 mg PO bid X 2d

4. Physician's orders – sample abbreviations

CXR:	chest x-ray
prn:	as needed (*pro re nata*)
po:	by mouth (*per os*)
bid:	twice daily (*bis in die*)
qd:	every day (*quaque die*)
ā:	before (*ante*)
p̄:	after (*post*)

5. Nurse's notes

- May be in SOAP format
- Describe daily routine of patient
- Record of vital signs for each nursing shift
- Record of medicine administration
- Record of diet, bowel and bladder function, visitors
- May use abbreviations

6. Consultations

- May be from a variety of specialists depending on patient's illness
- Note from specialist may look like a H&P or a SOAP note
- May make new orders directly to order section of chart or make recommendations for attending physician

7. Lab results - hematology

Complete Blood Count (CBC)

- White Blood Cell count (WBC)
- Red Blood Cell count (RBC)
- Platelets (PLTs)

7. Lab results – hematology, con't

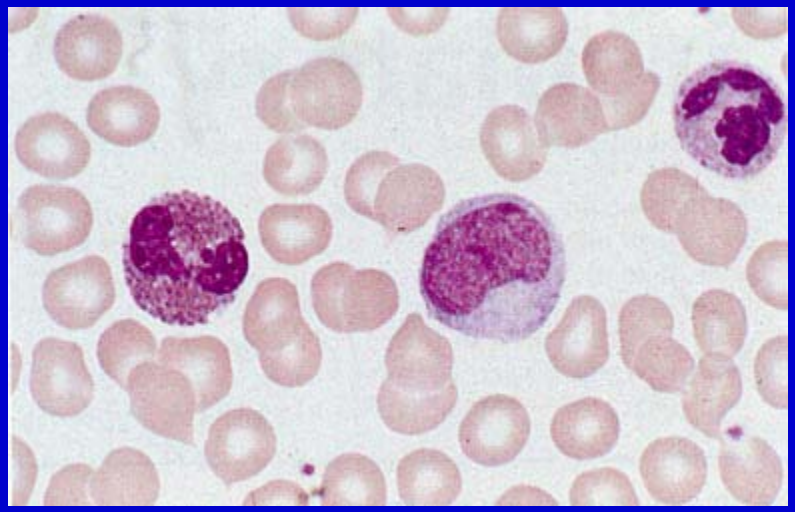
Jobs of selected cells

- WBC - infection fighters
- RBC - power sources
- PLTs - blood clotters

7. Lab results – hematology, con't

WBC types

- Neutrophils
- Segs (segmented neutrophils)
- Bands (band neutrophils)
- Lymphs (lymphocytes)
- Monos (monocytes)
- Eos (eosinophils)
- Monos (monocytes)



7. Lab results – hematology, con't

Normal adult WBC counts

WBC	4.0-10.5 X 1000/mm^3
Neutrophils	1.5-6.6
Segs	1.3-6.0
Bands	<1.0
Lymphs	1.5-3.5
Monos	<1.0
Eos	<0.7
Baso	<0.1

7. Lab results – hematology, con't

WBC during acute infection

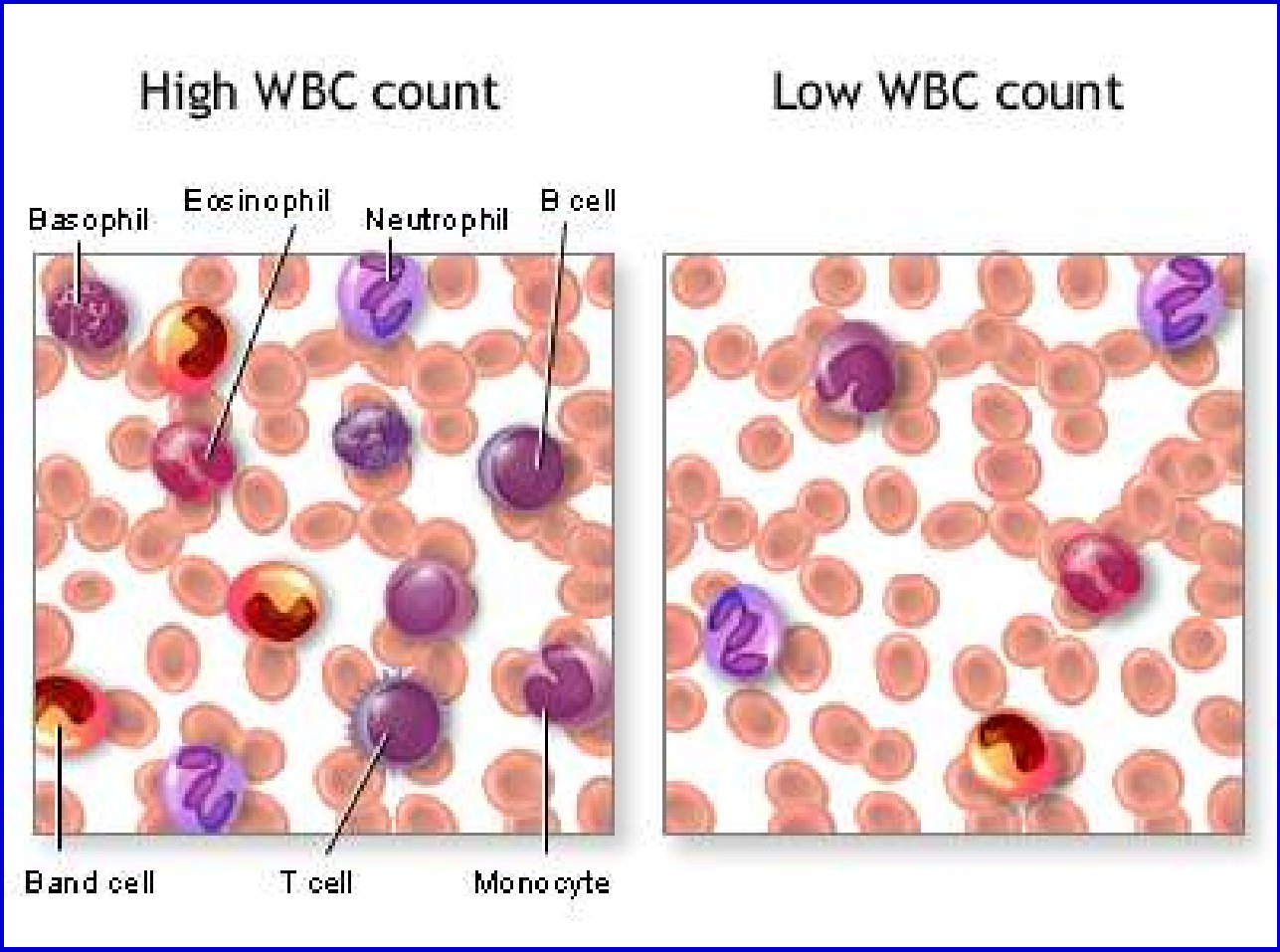
- May see an elevation in WBC, "left shift"
- Bone marrow working hard to produce WBCs to fight infection
- WBCs produced are not fully matured (band forms)

7. Lab results – hematology, con't

Example of a WBC during acute bacterial infection:

		normal
WBC	25,000/mm^3	(4,000-10,500)
neutrophils	15,000	(1,500-6,600)
bands	12,000	(<1,000)

Blood smear


High WBC count
Low WBC count
Basophil
Eosinophil
Neutrophil
B cell
Band cell
T cell
Monocyte

7. Lab results – hematology, con't

Selected RBC indices

Hb (hemoglobin) – a compound on the RBC that transports oxygen from the lungs to cells in the body AND transports carbon dioxide from cells back to lungs, also contains iron

HCT (hematocrit) – the % of RBCs in blood

7. Lab results, hematology, con't

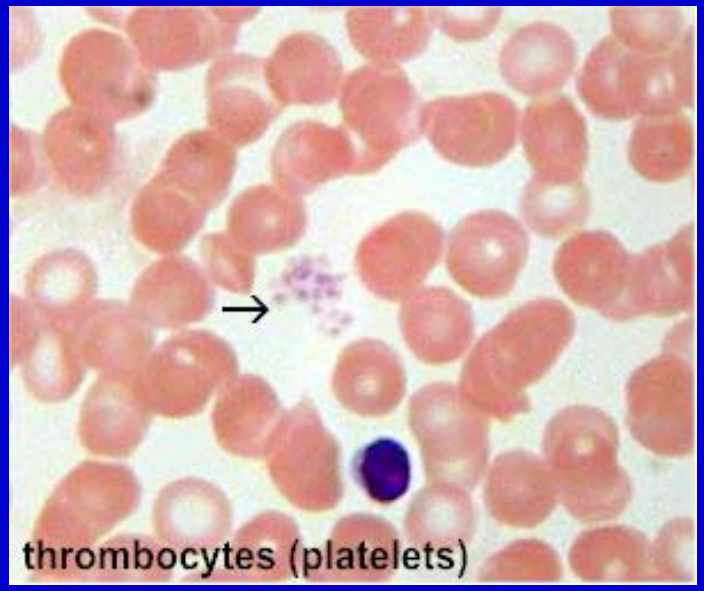
Normal adult RBC counts

	RBC ($X106/mm^3$)	Hb (g/dL)	HCT (%)
Male	4.7-6.0	13.5-18.0	42-52
Female	4.2-5.4	12.5-16.0	37-47

7. Lab results – hematology, con't

Platelets

- Cells essential for blood clotting
- Normal counts: 200,000 – 300,000/mm^3

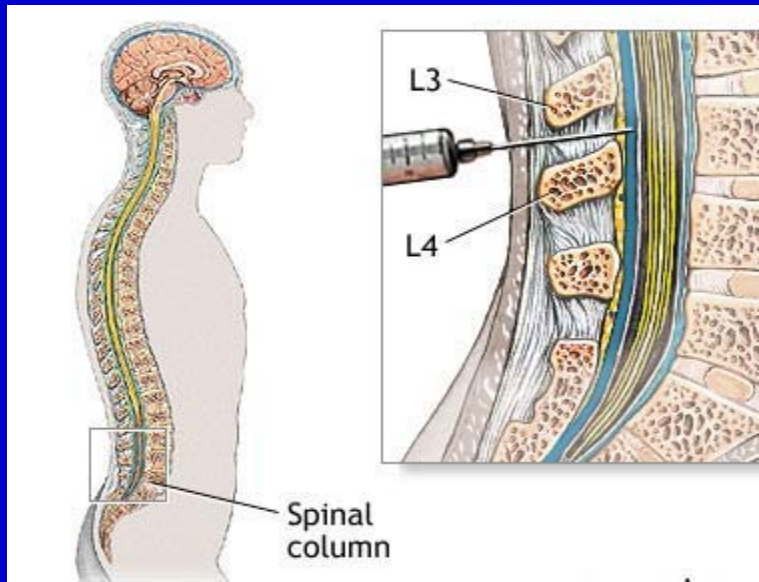


7. Lab results – blood chemistry examples

- Acetone
- Calcium
- Carbon dioxide
- Cholesterol
- Glucose
- Iron
- Lead
- Magnesium
- Oxygen
- Phosphate
- Potassium
- Prostate-specific antigen (PSA)
- Sodium
- Tyrosine
- Uric acid

7. Lab results - normal cerebral spinal fluid (CSF) findings

- Colorless
- Initial pressure: 70-180 mm H20
- Protein: 15-45 mg/dL
- Fasting glucose: 45-80 mg/dL
- WBC: 0-10/mm^3



Lab results - CSF findings in bacterial vs. viral meningitis

	pressure	protein	glucose	cells
B	nl/elev	++	low	50-10,000
V	nl	+	nl	50-1000

7. Lab results – serologic tests for infectious agents

- Person ill with an infectious disease makes antibodies
- Many tests (assays) that can detect these antibodies in blood and other fluids
- Test results usually reported as titers
- May have a single titer, or paired titers from 2 different samples

7. Lab results – serologic tests for infectious agents

- May be measured and reported as a single antibody titer

ex. toxoplasmosis IgM:

≥1:64 = active infection in adults

7. Lab results – serologic tests for infectious agents, con't

- May be measured and reported as paired antibody titers

ex. Lyme disease IgM:

≥X-fold rise in titer indicates recent infection

X:XX (acute sera, 2-4 wks. after rash)

X:XX (convalescent sera, 6-8 wks. after illness)

7. Lab results – microbiologic tests

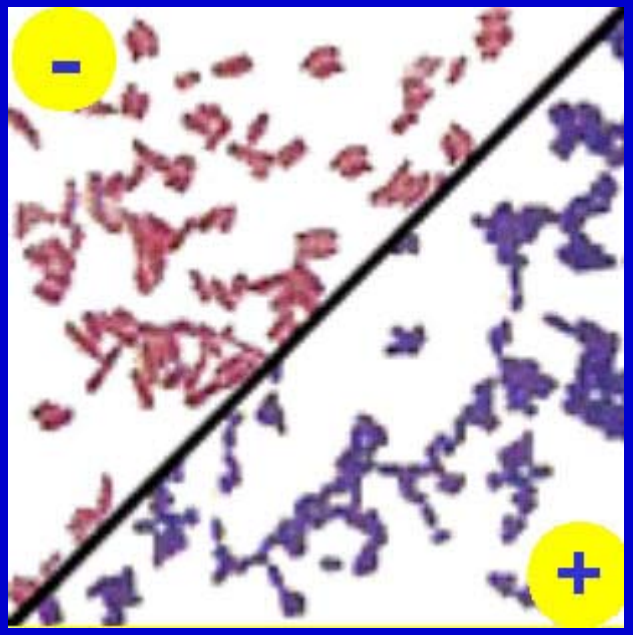
- Cultures
  - blood
  - stool
  - CSF
  - urine
  - joints

7. Lab results– microbiologic tests, con't

Gram stain

- helps identify bacteria
- based on ability cell wall to retain dye
- **gram + bacteria:** retain dye
- **gram - bacteria:** do not retain dye

7. Lab results– microbiologic tests, con't



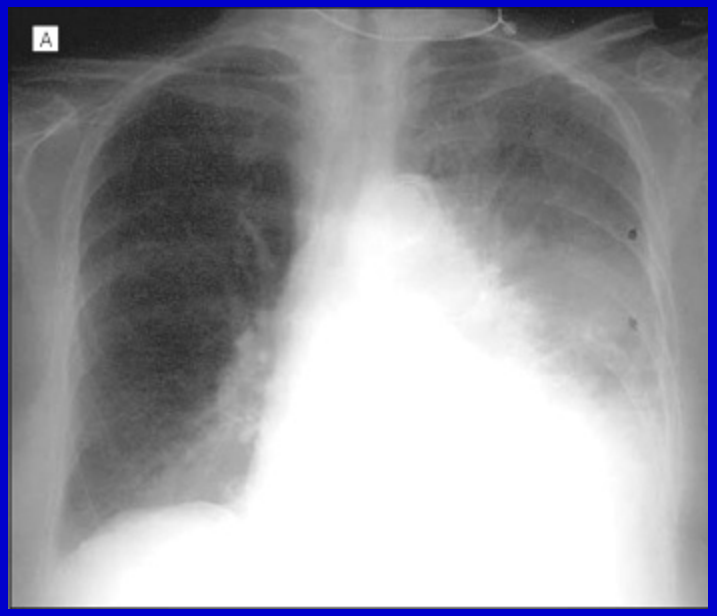
Gram Stain

8. Imaging studies

- X-rays
- CT scans
- MRI

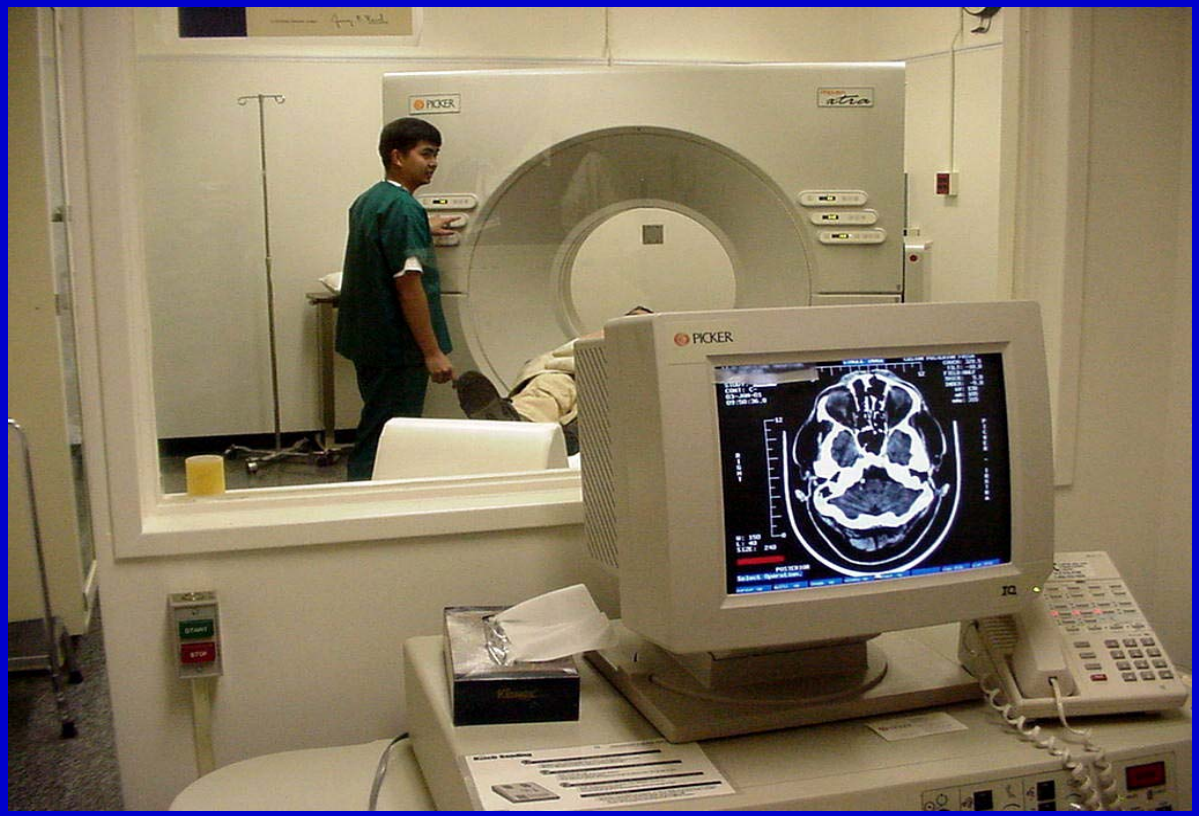
8. Imaging studies, con't

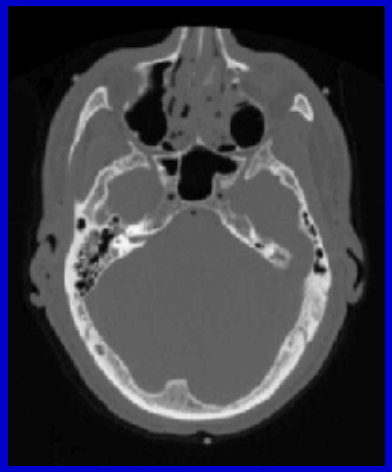
CXR



8. Imaging studies – con't

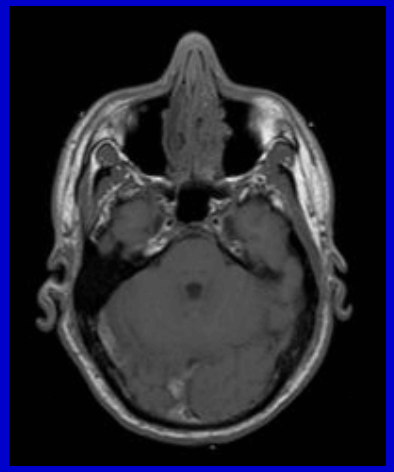
CT scan

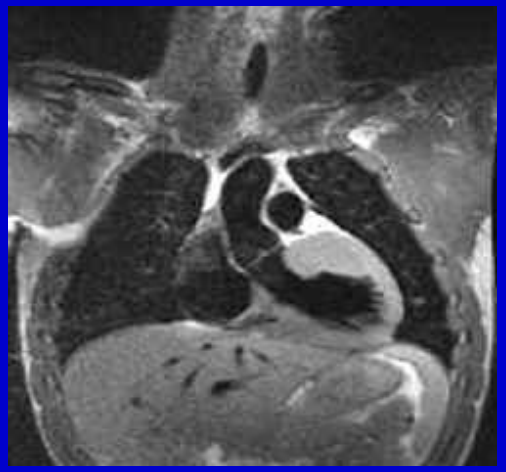




8. Imaging studies – con't

MRI





9. Discharge summary

- Purpose: to summarize the patient's hospital course, condition at discharge, and plan to future care